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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/584,712

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Yoshikazu Kawagoe

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NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER

PATEL, DEVANG R

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/584,712	KAWAGOE ET AL.	
	Examiner	Art Unit	
	DEVANG PATEL	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/26/06, 1/16/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 3-4 and 7** are rejected under 35 U.S.C. 102(b) as being anticipated by Garbini et al. (US 3883386).

a. **Regarding claim 3**, Garbini discloses a production apparatus capable of being used for a solar battery module production method (intended use)

comprising:

- i. a positioning belt 4 and a heating belt 3 located adjacent each other in a transferable manner [figs. 1-2]; and
- ii. a press belt 1 extending over the positioning belt and the heating belt in opposed relation to the positioning belt and the heating belt; wherein the heating belt and press belt are each controlled at a predetermined temperature [col. 2, lines 16-34].

b. **As to claim 4**, Garbini discloses lining the belt with fiberglass or Teflon [col. 2, line 59], which is composed of resin.

c. **Regarding claim 7**, Garbini discloses a production apparatus capable of being used for a solar battery module production method comprising:

iii. a heating belt 3 and a press belt 1 disposed in opposed relation;
and

iv. In accordance with broadest reasonable interpretation, the term "resilient" is defined as tending to recover from or adjust easily to change [Merriam-Webster online dictionary]. Accordingly, the pressing device 7 of Garbini is equivalent of a resilient member since it biases the heating belt and the press belt toward each other and is adjustable by any known manner [col. 3, lines 60-65]; the heating and press belts are each controlled at predetermined temperatures [fig. 2]..

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
7. **Claims 1-2 and 5** are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2000-022188 A (referring as JP'188) and in view of Garbini et al. (US 3883386).
 - d. **Regarding claim 1**, JP'188 discloses a production method for a solar battery module comprising the steps of:
 - v. utilizing a production apparatus [fig. 1] including a conveyance mechanism for placing cell c having an interconnect t, onto the supply stage 11 [equivalent to positioning belt; paragraph 29], a heating conveyor belt 10, and a press belt 55 [having pressure bar 56] extending over the positioning conveyor and the heating belt in an opposed relation to the positioning conveyor and the heating belt. It is not clear whether the apparatus is adapted to control the heating belt and the press belt at predetermined temperatures. Garbini et al. (hereafter Garbini) is drawn to a continuous conveyor apparatus for joining flat materials by heating

under pressure. Garbini also discloses a positioning belt 4 for feeding the articles 5. Garbini discloses an upper heating conveyor belt 1 and a lower conveyor belt 3 [fig. 1]; raising the temperature of the metal belt to the desired value [col. 1, line 50 thru col. 2, line 8]. Garbini discloses a further embodiment wherein both continuous belts include heating means 2 [fig. 2; col. 2, lines 15-19]. Thus, it is possible to control the heating belt and the press belt at predetermined temperatures [fig. 2]. Moreover, the belts are lined with an anti-adhesive material in order to avoid any adhesion between the treated parts and belts themselves [col. 2, lines 9-15]. It would have been obvious to a person of ordinary skill in the art to modify the conveyor apparatus of JP'188 by the conveyor belts of Garbini because doing so achieves a very fast and uniform heating of the whole belt and avoids adhesion between the workpiece and the belts [col. 1, line 66; col. 2, line 11]. Additionally, an artisan would have been motivated to provide a pair of opposing heating and press belts as shown by Garbini in order to obtain more efficient and uniform joining of the workpieces (solar battery cells in this case) [col. 1, lines 39-49].

vi. positioning a plurality of solar battery cells [c] and interconnectors [t] required for connection of the battery cells on an upstream portion of the positioning belt and transporting the solar battery cells and the interconnectors to a downstream portion of the positioning belt [paragraph 15];

- vii. transferring the solar battery cells and the interconnectors transported to the downstream portion of the positioning belt onto the heating belt while holding the solar battery cells and the interconnectors between the positioning belt and the press belt; and
 - viii. holding the solar battery cells and the interconnectors transferred onto the heating belt between the heating belt and the press belt and soldering the interconnectors to the solar battery cells while transporting the solar battery cells and the interconnectors [claim 3].
- e. **As to claim 2**, Garbini discloses lining the belt with fiberglass or Teflon, which is composed of resin.
- f. **Regarding claim 5**, combination of JP'188 and Garbini JP'188 as a whole discloses a production method for a solar battery module comprising the steps of:
 - ix. utilizing an apparatus including a heating belt and a press belt disposed in opposed relation. In accordance with broadest reasonable interpretation, the term "resilient" is defined as tending to recover from or adjust easily to change [Merriam-Webster online dictionary]. Accordingly, the pressing device 7 of Garbini is equivalent of a resilient member since it biases the heating belt and the press belt toward each other and is adjustable by any known manner [col. 3, lines 60-65]; the apparatus is adapted to control the heating belt and the press belt at predetermined temperatures as explained in claim 1 above.

- x. holding a plurality of solar batter cells and interconnectors between the heating belt and the press belt in a properly positioned state; and
- xi. soldering the interconnectors to the cells [claims 1-3].

8. **Claims 6 and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'188 in view of Garbini et al. and further in view of Focke et al. US 5674542).

g. **As to claims 6 and 8**, the conveyor apparatus of JP'188 or Garbini does not disclose the resilient member being a leaf spring. However, Focke et al. discloses flexible leaf springs 35 which exert pressure on the upper conveyor belt 24 so that the upper conveyor 24 and the lower conveyor 23 are pressed together [fig. 1; claim 3]. The claim would have been obvious because the substitution of the pressing device of Garbini by the known leaf spring of Focke et al. would have yielded the predictable result of effectively pressing the conveyor belts together to one of ordinary skill in the art at the time of the invention.

Information Disclosure Statement

9. The information disclosure statement (IDS) submitted on 6/26/06, 1/26/07 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Conclusion

Claims 1-8 are rejected.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. DE 3238187 discloses a production apparatus for solar cell

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modules. Meyer (US 4997507) discloses a conveyor apparatus for bonding laminar workpieces.

The rejections above rely on the references for all the teachings expressed in the text of the references and/or one of ordinary skill in the art would have reasonably understood from the texts. Only specific portions of the texts have been pointed out to emphasize certain aspects of the prior art, however, each reference as a whole should be reviewed in responding to the rejection, since other sections of the same reference and/or various combinations of the cited references may be relied on in future rejections in view of amendments.

Applicant is reminded to specifically point out the support for any amendments made to the disclosure. See 37 C.F.R. 1.121; 37 C.F.R. Part 41.37; and MPEP 714.02.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEVANG PATEL whose telephone number is (571)270-3636. The examiner can normally be reached on Monday thru Thursday, 8:00 am to 5:30 pm, EST..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DP

/Jerry A Lorengo/
Supervisory Patent Examiner, Art Unit 1793